

**CLAIMS:**

1. A method for recording data in an optical recording medium by irradiating a laser beam for recording data thereonto and forming a recording mark train and reproducing data from the optical recording medium by irradiating a laser beam for reproducing data having a wavelength  $\lambda$  using an optical system having a numerical aperture NA thereonto and reading the recording mark train,  
the optical recording medium comprising a noble metal oxide layer containing a noble metal oxide,  
10 the recording mark train being formed by decomposing the noble metal oxide and deforming the noble metal oxide layer and including at least one recording mark having a length shorter than  $0.37\lambda / NA$ , and the method for recording and reproducing data comprising steps of irreversibly depositing noble metal particles in the noble metal oxide layer and irradiating the laser beam for reproducing data onto the thus deposited noble metal particles, thereby reading the recording mark train.
2. A method for recording and reproducing data in accordance with  
20 Claim 1, wherein the noble metal oxide layer contains at least one of silver oxide, platinum oxide and palladium oxide.
3. A method for recording and reproducing data in accordance with  
Claim 1, wherein the optical recording medium further comprises a first  
25 dielectric layer and a second dielectric layer so as to sandwich the noble metal oxide layer.
4. A method for recording and reproducing data in accordance with

Claim 3, wherein the optical recording medium further comprises a light absorption layer containing metal and/or metalloid as a primary component and the light absorption layer and the noble metal oxide layer are disposed so as to sandwich the second dielectric layer.

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5. A method for recording and reproducing data in accordance with

Claim 4, wherein the light absorption layer contains at least Sb and/or Te.

6. A method for recording and reproducing data in accordance with

10 Claim 4, wherein the optical recording medium further comprises a third dielectric layer, and the third dielectric layer and the second dielectric layer are disposed so as to sandwich the light absorption layer.

7. A method for recording and reproducing data in accordance with

15 Claim 6, wherein the optical recording medium further comprises a reflective layer containing metal and/or metalloid as a primary component, and the reflective layer and the light absorption layer are disposed so as to sandwich the third dielectric layer.

20 8. An optical recording medium comprising a noble metal oxide layer

containing a noble metal oxide and the noble metal oxide is constituted as platinum oxide and/or palladium oxide.